

HEAT VERSUS CHOLERA.

Dr. Shepard's Paper Before the American Medical Association.

The Physicians Assembled at Milwaukee, Wis. How to Kill Germs—Civic Sanitation—A Turkish Bath Recommended as a Quarantine Appendage—The Conditions in India.

At the fourth annual meeting of the American Medical association in session at Milwaukee, Wis., Dr. Charles H. Shepard of this city, read a paper on "Heat a Preventive of Cholera," before the section of state medicine. The paper, which was well received, was as follows:

While we hope by reason of good sanitation to escape the scourge of cholera this year, yet the bare possibility of its coming renders all matters of hygiene of supreme importance. Therefore, whatever may contribute to our welfare in that direction is at this particular time worthy of more than ordinary consideration. In order thoroughly to master any disease it is necessary to know somewhat of its characteristics. The home of cholera is in movable and it is there only by virtue of re-creative causes. The personal habits of the India are clean, but they have no public water supply and in the larger cities the only water they can obtain becomes polluted from their own excretions. It has been demonstrated that where pure water was furnished the inhabitants, as in Madras and Calcutta, the ravages of the cholera were greatly reduced and the same has been observed in other countries. Dr. Pauline Root, who lived eight years in Southern India, reports that there is always more or less cholera prevalent in that section and that it is more common after certain religious festivals. Drainage, with the exception of the open sewer, is unknown, and the total lack of sanitation is responsible for the consequent spread of the disease. The study of the history of various epidemics has made many things plain, but the first radical step toward the understanding of cholera was taken when Robert Koch, the leader of the scientific expedition in Egypt, in 1883, discovered the exciting cause of that disease in the comma like bacillus. Shortly afterward Reitsch and Nicati, by introduction into the duodenum of cultivated comma bacilli, produced the veritable Asiatic cholera in guinea pigs, and the same effect has been confirmed by other investigators. It has also been demonstrated that the cholera germ is not an animal growth which can be suffocated by fumigating gases, but a vegetable, like the yeast plant, which needs a moderate amount of heat for its development, but apply more heat to the yeast plant or cholera germ, say 140 degrees Fahrenheit, and the germ is dead. The introduction of this specific form of micro organism is found to be necessary for the production of the disease. These germs must reach the intestinal canal alive, otherwise the disease cannot be developed. They necessarily pass through the stomach, but an acid medium is death to their existence. In fact, they are the most easily destroyed of all the pathogenic organisms known. If they safely run the gauntlet of the stomach, they come in contact with an alkaline medium and an albuminoid pabulum in which they develop and multiply with startling rapidity. These germs always come from the dejections of a cholera patient, and are commonly reintroduced into the alimentary canal of a second person, either in drinking water or in food. They do not enter the blood or tissues of the body, but remain in the lumen of the intestinal canal until they have exhausted their period of existence or killed the patient. They require for their rapid growth and development a large amount of water, an albuminous pabulum, a moderate degree of heat, an alkaline medium, and a quick removal of their products. The water is obtained by a rapid outpouring of this fluid from the blood. This large outpouring, together with the irritation by the growing bacteria, naturally increases the peristalsis and starts a diarrhea, which at first is painless, but later becomes a pronounced symptom. The continual flow of water into the intestinal canal dehydrates the blood and prevents the absorption of nutrition, thus at once parching and starving the victim. This readily explains the other symptoms and lesions. The accelerated heart beat is due to the small volume of blood which flows with difficulty through the capillaries. The pulse is small and thready, because there is not enough blood to fill the arteries. The dyspnea is marked because the blood carries but little oxygen. The brain is sluggish and irregular in action from an incomplete blood supply. The muscular contractions are painful on account of the intense dryness and a consequent binding of the fibers as they play one upon another, and the liver and kidneys degenerate from the same cause. The surface epithelium in the intestines degenerates, dies and desquamates, producing the characteristic rice water discharges. These symptoms and pathological conditions are identical with a severe attack of simple cholera morbus. Both the simple and Asiatic types of cholera can result fatally through the abstraction of water from the system. The discovery of the bacteriologist that the cholera germ will not live longer than twenty-four hours entirely without moisture, and that excessive heat, or excessive cold will kill it, relieves us from all fear of taking the disease by breathing the germs in the air. Furthermore the cholera germs do not produce spores or seeds. Reproduction is effected by rapidly progressing physical extension. It has been found impossible to cure cholera when at its worst, for under whatever treatment tried, nearly one-half of those attacked die. It is about as hopeless to expect to find a drug or nostrum which can go through the process known as curing cholera as to find a drug which can cure a man who has taken a dose of arsenic. Cholera once thoroughly established, drugs are of little avail. So said a prominent physician of England, and this statement but emphasizes the importance of all preventive measures. In the present state of medical knowledge and sanitary science cholera can be reduced to one of the least dangerous of maladies, instead of being one of the most dreaded. In theory it is possible to eradicate Asiatic cholera from the face of the earth by thorough disinfection. The most important matter is the establishment of a system of civic sanitation which shall have for its object the prevention of an outbreak of cholera. Cleanliness is the one great safeguard against this enemy of mankind. Its victims are chiefly those who are already in an unhealthy condition or in unwholesome surroundings. If we put the surroundings in good order, but more than all, if we put ourselves in a thoroughly sanitary condition, we can defy the foreign plague. A healthy stomach has the best guard against the cholera bacillus in the acid condition of the gastric juice. The more effectually to secure this action large quantities of fluids, even water, should not be taken with the food. By swallowing a large amount of liquid at once part of the contents of the stomach will immediately pass the pylorus and thus even provided there were germs in the stomach that would have been destroyed if allowed to remain in contact with the acid of the gastric juice they may be passed on to begin the work of destruction. All agree that it is of the greatest importance to treat the first symptoms of looseness of the bowels, and in this treatment the usefulness of acid astringent drinks is most valuable. The bacteriologist finds that the healthy normal gastric juice of an animal's stomach will quickly destroy the cholera germ, even when literally fed on the same. "Therefore," he says, "let each individual quarantine his own system, by keeping it clean and healthy at all times. Avoid stimulants, narcotics, dietary excesses and dissipation. Don't overwork." Quarantine has been aptly described as an elaborate system of leakiness. If complete, it would be impossible for a commercial country, and if incomplete, it gives only a false security, as all foreign and continental experience thoroughly proves. The custom comes down to us from ancient times and had its origin in the fears of the superstitious. These barbarous regulations are still observed in many European countries and our own experience in New York harbor last autumn was more worthy of the middle ages than of the nineteenth century. The futility of such measures is shown by the complete system of isolation enjoined by the Chinese and yet in no country are destructive epidemics more common. On the contrary, the British have almost no quarantine, and at the same time are more exposed by their intimate commercial relations with the rest of the world than any other nation, yet last summer, while we were wildly excited over the matter, the English were more more concerned about cleanliness than quarantine. The commercial interests of that country have given wisdom to their manner of dealing with infectious diseases of foreign origin, and the result has been the reduction of quarantine to the simplest form, with special attention to the sanitary condition of seaports, cities and towns. England has expended, within the last fifteen years, about \$450,000,000, in local hygienic improvements, exclusive of a large amount of money spent by the government to supplement the efforts of the local boards. The fact that during last year that country was practically free from the disease and that there

was scarcely any interruption of travel or traffic, serves to show that sanitary measures are of more value than all else beside. The cholera germ is not the most important factor, but is rather the incidental cause. The question of prime importance is the sanitary condition of the individual. The introduction of a person infected with cholera into a filthy town is like bringing a match into a powder magazine; but there would be no explosion unless the powder was there ready to explode. Therefore, the most effective means to prepare our people against an epidemic of cholera is an enforcement of all sanitary measures, chief among which is the establishment of large public Turkish baths, which I had the honor of advocating before this body in a paper read last year. By so doing we would establish a higher standard of health in the community, and not only would the poorer classes be less liable to any invasion of cholera, but of all other filth diseases as well, such as diphtheria, etc. One of the most effective quarantine measures would be a large Turkish bath, where every immigrant could be thoroughly cleansed, completely disinfected, and his clothing and personal effects sterilized. Let the people understand that the cholera is non contagious. The atmosphere is not permeated by germs that endanger health, in fact the air may be thrown out of consideration almost entirely. The source of danger is the food and water that have been contaminated by want of attention to the gastric and alvine discharges of the sick, or to the careless handling of the bedding and linen that have been soiled by them. It is not so much the dirt of the streets or the emanation of the sewers as the filthy people themselves that generate disease. The most injurious thing that can be done with cholera excreta is to dump it in the sewage to pollute the rivers of any town. As it is at present, a large river in a city is an active element in the distribution and propagation of contagion, and the surest prevention of cholera is to burn or otherwise consume all sewage, instead of dumping it into the waterways. Strict attention to cleanliness is of the greatest importance in such cases and renders cholera no more dangerous than a case of typhoid fever. In London, during the year 1886, it was found that one family that had escaped from Egypt to dwell on the banks of the river Lee, from which the supply for East London was drawn, so contaminated the water as to produce an epidemic that carried off 6,000 people. The trouble in Hamburg last year arose from the pollution of the river Elbe, from which the water supply of that famous city was drawn. Seven thousand victims in one month was a fearful retribution for the sin of neglect. The *Indian Medical Gazette* of May, 1887, reports an outbreak of cholera on board a ship at Calcutta, from milk supplied by a native. This milk was proved to have contained 25 per cent. of water from tanks contaminated with choleraic matter. No more cases occurred when the supply of milk was stopped. Thus it is apparent that the most perfect personal defense against bacteria of all kinds, but particularly of cholera, is a vigorous digestion in a well conditioned body, and the one fluid that is absolutely fatal to the bacillus of cholera is healthy gastric juice. Furthermore, it would seem, from a series of experiments on themselves, conducted by Professor Pettenkofer and Professor Emmerich of Germany, wherein each swallowed one centimeter of fresh culture of comma bacillus, direct from Hamburg, that measures directed against the germ itself, such as quarantine, disinfection, etc., were less important than attention to hygienic conditions, diet and personal surroundings. This most desirable consummation is to be attained by the action of heat, through a process that commends itself to every thinking mind, and is at the same time both pleasurable and invigorating. The highest medical authorities in this and other lands have given their fullest endorsements of its use and advantages. It has stood the test in several previous epidemics with eminent success. The great need of our country is large public establishments, where the people can resort at all times, and by a complete course of sanitation ward off all danger of an epidemic. It is as a preventative that the great value of heat will be demonstrated, and the treatment that strives simply to augment in every way the vital resistance of the system to the successive invasion of choleraic poisoning is what we would most seriously urge. Hot baths, combined with absolute rest of the body, should be availed of at the earliest moment. That heat has manifold uses and confers untold benefits, all will admit. Its effects are apparent throughout the world, but none are of greater service than those directly applicable to the human body. Heat comes directly as well as indirectly from sunlight, which is itself but an electric force. There was a time when mankind worshiped the sun. Through heat we live, move and have our being; without heat we die. While it is so powerful an agent in health, it cannot be thought strange that it is equally powerful in disease, whether as a preventive or cure. Heat purifies the air that we breathe, the water that we drink, the food that we eat, and thus becomes the best and most important disinfectant. Through the medium of the Turkish bath, which is found to be the most perfect form of administering heat to the human body, a record has been made that is astonishing to all who are not familiar with its practical working. The experimental stage has long passed. Our food and drink are rendered both more palatable and germ proof by the action of heat. We can rely perfectly on heat as a means of sterilization. The germ cannot live in food that has been thoroughly cooked, nor will it survive in water, milk, tea or coffee that have been on the fire long enough to boil. Heat is also death to the cholera germ, if applied in air, steam or water. Dr. Sternberg says that free exposure to air and sunshine is one of the most reliable methods of disinfecting articles which have attached to them the cholera spirillum. Its low death point, which he places at 125.6 degrees Fahrenheit, justifies us in giving heat the first place as an agent for the destruction of this pathogenic micro organism. Ten minutes' exposure to 140 degrees may be relied on for its destruction. Milk or water heated to that point is rendered safe. The germs are also very quickly destroyed by desiccation. A weak solution of sulphuric, hydrochloric or carbolic acid will also quickly destroy the germ. Dr. J. T. Talbot of Boston says: "There is no disinfectant or antiseptic equal to heat in a high degree, and in all these poisonous conditions depending on germ life the germs have ten times the resisting power of drugs, although they will in every case be destroyed by a sufficient degree of heat." Medical Director Bogart reports that when on government vessels in Chinese and Japanese seas, in 1878 and 1885, the cholera broke out among the crew but was promptly checked by cleanliness and heat. All clothing, bedding and personal effects were subjected to dry heat and the ships were steamed by their own boilers. Dr. Louisa R. Smith, who was in Turkey during the epidemic last year, states as her observation that the majority of cholera cases can be saved if proper means are used at the beginning, and that the infection is powerless among people who are careful to cook all water and food. She worked freely among the sufferers, but took only boiled water and hot food. A Russian physician reports excellent results in cases of pronounced cholera from placing the patient in a bath of warm water (99 Fah.). As a result, the vomiting ceases immediately and does not reappear as long as the patient remains in the bath, which ought to be at least half an hour. According to Dr. Mariano Sennola of Italy the sheet anchor of physiologic treatment is by means of complete fasting from the very moment the smallest manifestations of diarrhea appear, to be continued at least twenty-four hours after favorable reaction has set in. First in order of treatment comes hot baths, given at 100 to 104 degs. Fah. and repeated as occasion requires. He states that the favorable moments for the hot baths is the first stage of the disease, before the algid period has begun, or when the patient commences to feel a sensation of uneasiness in the epigastrium, with or without vomiting. He further says that he has seen hundreds of cases where the simple diarrhea, which had been obstinate and persistent for several days, and which would later on, no doubt, have developed into a regular attack of cholera, suddenly disappear after one or two hot baths followed by abundant perspiration. * * * The return to alimentation ought to be made with the greatest prudence, as the smallest error may be fatal. Milk in small doses is the preferable form of food when it becomes necessary to recommence alimentation. The bath was a religious and civil law of the Hebrews. During the epidemic last year in Russia, an investigation was made to ascertain the mortality among the Jews, and it was found to be only forty victims out of a total mortality of nearly a quarter of a million. This fact is a most emphatic comment on the Mosala laws of cleanliness given that people over two thousand years ago. A man in England once treated cholera patients by wrapping them up in blankets and placing them before a hot fire, and he claimed to cure every case he undertook. Mr. Urquhart, during an epidemic in Turkey, subjected every member of his household to hot air treatment daily, with the result of complete immunity, while deaths were constantly occurring in his immediate vicinity. During the prevalence of cholera in Cork, Ireland, some years ago, the men employed in cleaning out the brewers' vats, wherein was heat sufficient to cause profuse sweating, were free from the disease, and the other workmen in the establishment petitioned to be put at that work. What more fitting than the use of heat for the cremation instead of the burying of the cholera corpse. It has the sanction of the highest authorities and all sanitarians recommend it. This is complete sterilization of the dead body. Virohow's

advice as to the best factor in the prevention of an epidemic and in the destruction of any contagious carrier is "heat or cremation." This has been successful wherever tried. Over thirty years' experience in the use of heat as a remedial agent has demonstrated that all diseases of a diarrheal nature are quickly controlled by its proper use and, during the summer of 1865, when cholera was with us to a limited extent, many cases of painless diarrhea were at once corrected by the action of the Turkish bath. Thus fortified both by theory and practice, we can but conclude that by no other means can one so thoroughly protect himself against the cholera as well as against all other diseases as by the frequent use of a hot air bath, otherwise called the Turkish bath.

UNDERTAKERS TO HOLD A CONVENTION.

Many Things Not Funereal Will Be Discussed by These Grave Citizens.

The fourteenth annual convention of the New York State Undertakers' association will open in the Thomas Jefferson building, Court square, next Tuesday. It will last for two days, during which time nearly every undertaker in the state will be in the city. The organization is a powerful one and has an excellent membership. The following programme has been devised for the sessions these grave rather than festive men will hold.

Tuesday, morning session: Calling the convention to order by President W. L. Earle; prayer by Rev. William Hamilton Morgan; appointing committee on credentials; address of welcome by Mayor David A. Boody; response by William J. Phillips of Albany; roll call of delegates; reading of minutes of last meeting; address by President Earle; reports of the secretary, treasurer and executive committee; address by Josiah Pearce of Ardmore, Pa. Afternoon session: Convention called to order; unfinished business of morning session; address by B. Frank Kirk of Germantown, Pa.; notices, motions and resolutions; new business.

Wednesday, morning session: Unfinished business of previous session; report of address by R. R. Brin, president of the International Undertakers' association. Afternoon session: Address by Josiah Pearce, president of the International Funeral Directors' association; report of delegates to Louisville, Ky.; report of the committee on legislation; election of officers, election of delegates to international convention, selection of place for next convention, adjournment.

The members on Thursday will be the guests of the Kings county delegates, who have arranged for a sail to Riverside park and thence to Hell Gate on the steamer Pomona.

THEIR NEW PASTORS.

Clergymen Welcomed by Two Brooklyn Churches.

Rev. G. N. Makely Installed Over the Cumberland Street Presbyterians—Rev. E. A. Wright and Mrs. Wright Warmly Greeted by the Universalist Church of the Reconciliation.

Rev. G. N. Makely was installed pastor of the Cumberland street Presbyterian church, Cumberland street, near Myrtle avenue, last evening. The members of the congregation assembled in good numbers shortly after 8 o'clock and gave an informal welcome to their new spiritual adviser. The services opened with an organ prelude by Mr. C. W. Allen, after which Rev. A. B. Pritchard made a very solemn and impressive invocation. The congregation then sang the hymn, "I Love Thy Kingdom, Lord" and Mrs. Frazier and William Green rendered a duet entitled, "Saviour, Source of Every Blessing." The "Te Deum" of Lloyd was then intoned by the church quartet, after which Rev. J. McClellan Holmes, D. D., of Albany, N. Y., preached the sermon. He took his text from the Epistle of St. Paul to the Ephesians and alluded in his opening remarks to the three great professions of law, medicine and theology, all of which were necessary in the life of a man. While he esteemed law and medicine as more concerning the physical side of man, he felt obliged to give theology the first place, because it had to do with the spiritual in human nature, which was more than the physical. He said it was an exercise of much pleasure to participate in the exercises of the evening, when a man was about to open a pastorate in what was already a fruitful field.

Mr. William Green sang a solo "Behold I Stand." Rev. Donald MacLaren made the prayer of installation, and Rev. Newell Woolsey Wells delivered the pastoral charge. The charge to the people was made by Rev. David Gregg, D. D. A hymn, "Stand up for Jesus," was sung by the congregation and the new pastor pronounced the benediction.

When the services were over Rev. Mr. Makely was again met by the congregation and many pleasant conversations followed.

The Rev. E. A. Wright has assumed the pastorate of the Universalist church of the Reconciliation, on the corner of North Henry street and Nassau avenue, and preached his first sermon Sunday. A strawberry and ice cream festival was given by the Sunday school last night, and a reception was given to the new pastor and his wife, who is also ordained to the Universalist ministry. The meeting was held in the church building, and nearly the entire congregation and Sunday school were present. An interesting programme was rendered by the Sunday school. There was chorus singing by the school and by selected voices. The baby song from "Wang" was rendered by twenty children, and five little girls sang about five little chicks. Miss Daisy Levensky recited "A Polite Little Man" creditably, and Miss Emma Edwards played a piano solo. Russell E. Lund told "How to be a Man," and Miss Entresol and Miss Little sang solos. Mr. George W. Sears played a piano solo. While the cream and strawberries were being served Mr. Wright held a reception and shook hands with all present. He made a favorable impression on his new congregation. He is a graduate of Canton Theological seminary of New York. He was ordained three years ago, his wife being admitted to the ministry at the same time. He at once accepted a call to Morrisville, Vt., and only left that place to come to Brooklyn.

Some of those who shook hands with Mr. Wright were Mr. and Mrs. J. Taylor, Mr. and Mrs. W. Hyland, Mr. and Mrs. C. Parmateer, Mr. and Mrs. Moore, Charles E. Linn, Mr. and Mrs. J. H. Lane, Mrs. Chandler, Mr. and Mrs. Howard, George W. Seers, the Misses Miller, Mr. and Mrs. J. H. English, Mr. and Mrs. H. Conklin, Mr. and Mrs. Weston, Mr. and Mrs. Ballou, Mr. and Mrs. John Carr, Mr. and Mrs. Kyler and Mr. and Mrs. Berrian.

FIRST GUN OF THE CAMPAIGN.

Mayor Boody Promised the Support of All Souls' Sunday School.

At the conclusion of the Sunday school yesterday in the Eastern district, Mayor Boody stopped for a few moments in the chapel of All Souls' church, where the children were enjoying an abundance of ice cream and cake. The mayor was given a very enthusiastic welcome.

In a brief response that he made he said that he had been asked to go to Chicago to attend Brooklyn day ceremonies. If he could take with him the children he had seen he should be very glad to go. They were the real representatives of the city and he should be proud to be with them at the World's fair. In closing the mayor said he hoped to see the same children again next year and then recalling the fact that in the meantime there would be a majority election, turned to Rev. Dr. Adams and laughing, said: "I may not have the opportunity." Dr. Adams promptly replied: "If your reception here to-day is any indication this school will be solid for you." This sentiment the scholars endorsed with hearty applause and the mayor retired.

WASHED ASHORE AT WHITESTONE.

The Body of an Unknown Man Found on the Beach.

The body of an unknown man in an advanced stage of decomposition was washed ashore at Whitestone yesterday afternoon. The body was removed to Johanna's morgue, at College Point, where it is now lying to be identified. The body is that of a man about 50 years old, and had evidently been in the water about two months. It is impossible to recognize the features, as they are badly decomposed and disfigured. He was dressed in dark clothing and wore two pair of trousers. He had on a heavy overcoat, in which was found a pair of slippers and two felt hats wrapped in newspaper, but there was nothing on the body by which it could be identified. He wore congress gaiters. The body will be buried in the Potters field tomorrow.

It Can't Be Done, Said the Sceptics. It is done every day by the New York Central—"America's Greatest Railroad"—20 hours New York to Chicago—Ado.

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